TWO NEW SPECIES OF IDOLOTHRIPS.

By J. Douglas Hood, Urbana, Illinois.

Of the two species of Idolothrips to be described below, the former has been known to me for more than two years, but only recently have I recognized it as distinct from I. coniferarum Pergande, which was described in 1896. I regret that I have been unable directly to compare these species, but I have never met with the latter in the field, and have been unable to secure specimens from the original describer.

The value of the antennal sense cones in the definition of species seems to have been first recognized by Dr. Hinds, and in his descriptions, their form, size, and position are usually noted. In view of the value of these structures in specific, if not generic, determination, I have ventured to introduce into the following descriptions a method of recording their positions. The number of the antennal segment is followed, first by the number of sense cones on its inner surface, and then by the number on its outer surface; rudimentary cones are indicated by an exponent preceded by a plus sign. Thus 3, $2\text{-}1^{+1}$ means that on the inner surface of the third antennal segment are situated two fully-developed sense cones, while on the outer surface there is one fully developed and one rudimentary, cone.

Genus IDOLOTHRIPS Haliday, 1852.

Idolothrips armatus sp. nov. (fig. 9; 1, 2, and 3*a*).

Female.—Length about 3.3 mm. Color black; antennal segments 3–5 yellow basally; tarsi blackish brown; fore tibiæ often brownish yellow along middle of inner surface.

Head about two and one-half (2.44–2.64) times as long as wide; narrowest just behind eyes, widest just before the base, and without "neck-like constriction"; dorsal and lateral surfaces finely striate, sparsely set with short, subequal, inconspicuous spines; vertical bristles slightly shorter than the postocular, which are about one and one-half times as long as eyes; vertex conical, produced, apex overhanging insertion of antennæ. Eyes large, prominent, bulging, finely faceted, distance across them almost equal to greatest width of head. Ocelli small; anterior ocellus occupying extreme vertex; posterior ocelli nearly opposite centers of eyes and slightly removed from their inner margins. Antennæ slender, eight-segmented, about 1.4 times as long as head; segments 3–5 clavate; 6 and 7 sub-cylindrical, pedicellate; 8 lanceolate; segments 1 and 2 nearly concolorous with body, 2 slightly paler apically; segment 3 yellow, apical sixth clouded with black; segments 4 and 5 with respectively their basal two-thirds and two-fifths yellow; remainder of antenna concolorous with body; sense cones long, slender, transparent, scarcely distinguishable from the antennal bristles; formula: 3,0-1; 4, 1-2; 5, $1\text{-}1^{+1}$; 6, $1\text{-}0^{+1}$; 7 with one on dorsum near apex, and 3 and 4 each with a sub-apical one on ventral surface. Mouth cone short, broadly rounded, reaching about to middle of prosternum.

Prothorax very slightly shorter than greatest width of head, and (including coxæ) about twice as wide as long, with a prominent median groove; surface faintly reticulate; usual spines all present, the pair at the posterior angles much the longest, nearly as long as the postoculars. Pterothorax sub-rectangular, slightly wider than long, and slightly broader than prothorax; anterior corners projecting slightly beyond the lateral margins. Wings present, short, reaching to posterior margin of sixth abdominal segment. Legs without conspicuous spines; fore femora slightly more than half as wide as greatest width of head; fore tarsi armed each with a short broad tooth.

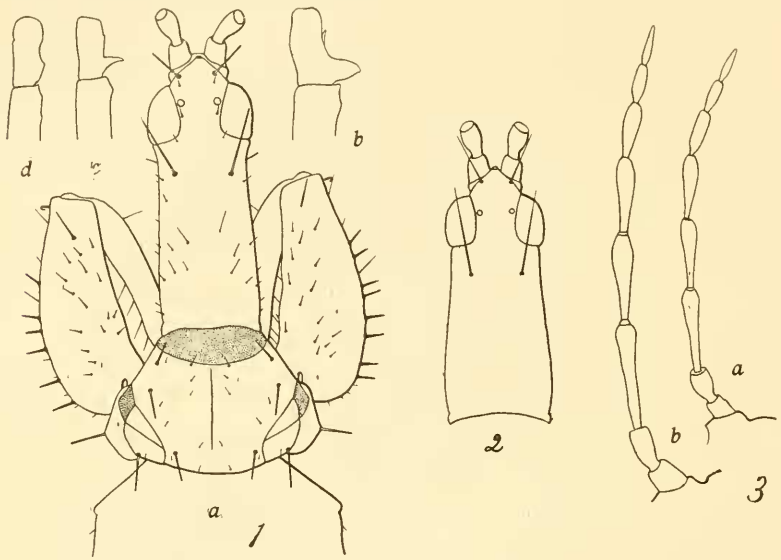

Fig. 9.

1.—Idolothrips armatus sp. nov.; a, head and prothorax, male, x67; b, c, left fore tarsus, male, x93, showing variations; d, left fore tarsus, female, x93. (J. D. H., del.)

2.—Idolothrips armatus sp. nov., female, head, x67. (J. D. H., del.)

3.—a, Idolothrips armatus sp. nov., female, right antenna, x67; b, Idolothrips tuberculatus sp. nov., female, right antenna, x67. (J. D. H., del.)

Abdomen long, very slender, lanceolate, about 1.4 times as wide as pterothorax, and about four times as long as its greatest width; widest at segment 2, thence tapering evenly to base of tube. Tube slightly shorter than head, tapering evenly from base to apex; surface not spinose; terminal bristles much shorter than tube, brown or black at base. Spines on segments 5–8 one-third as long as tube; those on segment 9 nearly as long as tube.

Measurements:—Total length 3.0–3.6 mm.; head, length .56 mm., width .22 mm.; prothorax, length .22 mm.; width (including coxæ) .40 mm.; pterothorax, width .45 mm.; abdomen, width .61 mm.; tube, length .50 mm.; width at base .118 mm.; at apex .059 mm. Antennæ: 1, 53μ; 2, 76μ; 3, 165μ; 4, 140μ; 5, 123μ; 6, 104μ; 7, 73μ; 8, 78μ; total, .81 mm.; width, 42 μ.

Male.—Larger than female (length 3.3–3.9 mm.). Fore tarsi yellow; fore tibiæ yellow along middle of inner surface, becoming concolorous with body laterally and basally.

Head about 2.8 times as long as wide (2.77–2.92), widest across eyes; genal spines inconspicuous, the pair just behind the eyes largest. Eyes larger and

more bulging than in female, the head flaring out to receive them. Antennæ slightly less than 1.4 times as long as head (usually about 1.38).

Prothorax slightly longer than greatest sub-basal width of head. Fore femora usually as wide as, or slightly narrower than, head, armed on basal half of outer surface with about seven prominent, stout, black, and nearly equidistant spines, and on outer surface near apex with a long, stout, downwardly-hooked spine; fore tarsi provided either with a long and very stout straight tooth or with a shorter and much more slender curved one.*

Abdomen more slender than that of the female, slightly narrower than pterothorax, and about five times as long as wide; tapering evenly from base to tube. Tube about .65 as long as head, and excepting a short basal widening, tapering evenly to apex.

Measurements:—Total length 3.3–3.9 mm.; head, length .60 mm., width .218 mm.; prothorax, length .224 mm., width (including coxæ) .45 mm.; pterothorax, width .52 mm.; abdomen, width .51 mm.; tube, length .37 mm., width at base .101 mm., at apex .059 mm. Antennæ 1, 53μ; 2, 75μ; 3, 173μ; 4, 151μ; 5, 136μ; 6, 107μ; 7, 75μ; 8, 78μ; total .84 mm.; width 42μ.

Described from eight females and eight males, all from Illinois, as follows: Carbondale, May 19, June 20, in galls of Gnorimoschema gallæsolidaginis on Solidago canadensis (C. A. Hart, J. D. H.); Havana, June 27, in miscellaneous sweepings (C. A. H.); Pulaski, May 24, in woodland sweepings (C. A. H.); Urbana, Aug. 7, on Plantago rugelii (J. J. Davis).

This species is closely related both to I. africana Trybom and I. coniferarum Pergande. From the former, it may easily be distinguished by the shape of the tube, which is fully four times as long as its greatest basal width, while in africana the tube is "am Grunde ein Drittel so breit wie lang." From coniferarum, of which Dr. Hinds gives four figures, it differs most noticeably in the shape and length of the head, the length of the vertical and postocular bristles, and in the form of the antennal segments. The male of armatus, furthermore, has a strong, hooked subapical spine on the outer surface of the fore femora, in addition to the stout and nearly equidistant spines which have suggested the species name.

Idolothrips tuberculatus sp. nov. (fig. 9, 3*b*; fig. 10).

Female.—Length 3.8–4.3 mm. Color coal black, without markings; antennal segments 3–6 yellow basally; tarsi and apices of tibiæ brown.

Head slightly more than twice as long as wide, slightly narrowed just behind eyes and at extreme base, widest across eyes; dorsal and lateral surfaces finely striate; cheeks with many prominent, stout, black spines, of which a postocular and a sub-basal pair are usually longer; vertical bristles shorter than the postocular, which are about equal in length to eyes; vertex conical, produced, apex overhanging insertion of antennæ. Eyes large, prominent, bulging, finely faceted. Ocelli moderate, their diameter about twice as great as that of facets of eyes; anterior ocellus occupying extreme vertex; posterior ocelli opposite anterior third of eyes and slightly removed from their inner margins. Antennæ slender, eight-segmented, about one and one-half times as long as head; segments

*The size of the tarsal tooth apparently depends upon the degree of enlargement of the fore femora.

3–5 clavate; 6 subclavate; 7 sub-cylindrical, pedicellate; 8 lanceolate; segments 1 and 2 nearly concolorous with body, 2 slightly paler apically; segments 3–6 with respectively their basal two-thirds, three-fifths, two-fifths, and one-third, pale yellow; remainder of antenna dark blackish brown; all sense cones long and slender; formula as for I. armatus sp. nov. Mouth cone short, broadly rounded, reaching about to middle of prosternum.

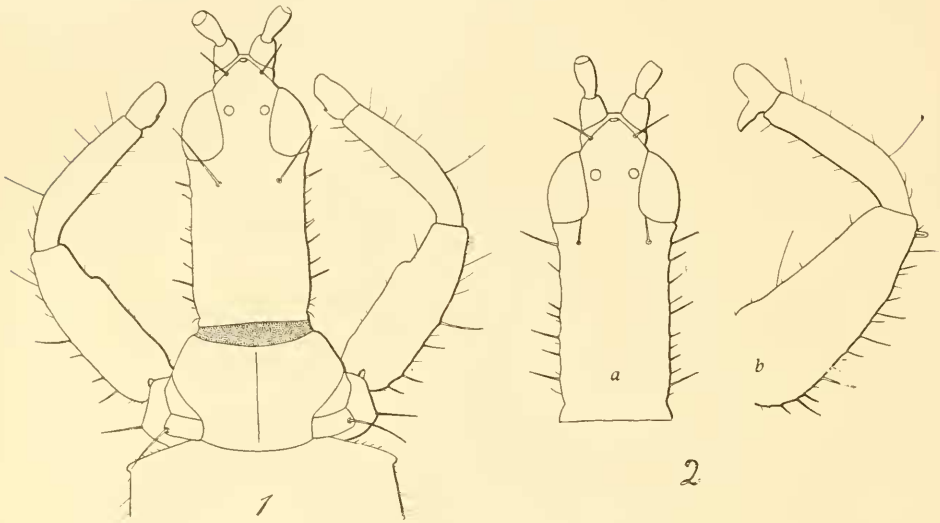

FIG. 10.

1.—Idolothrips tuberculatus sp. nov., female, head and prothorax, x60. (J. D. H., del.)

2.—Idolothrips tuberculatus sp. nov., male, a, head, x67; b, right fore leg, x60. (J. D. H., del.)

Prothorax about as long as width of head, and (including coxæ) about twice as wide as long, with a median groove; surface reticulate; coxal spine and the two notal pairs near the posterior angles, prominent; all others lacking (?). Pterothorax sub-rectangular, about two-thirds as long as wide, and slightly broader than prothorax. Wings large, powerful, closely fringed, and washed with brown at base; principal vein of both pairs extending about to middle; fore wings with a blackish brown area in front of the black anterior vein, with the sub-apical fringe on the posterior margin double for about forty hairs, and with the most distal of the three basal spines fully as long as the prothorax. Inner lower surface of fore femora each with a large prominent semicircular projection; fore tarsi armed each with a short, acute, hooked tooth, the apex directed forwards on a line parallel to the tarsus.

Abdomen large, heavy, lanceolate, slightly wider than pterothorax and about 3.3 times as long as its greatest width; widest at segments 2 and 3, thence tapering nearly evenly to base of tube. Tube slightly shorter than head, tapering evenly from base to apex; surface not spinose; terminal bristles shorter than tube, black at base. Spines on segment 9 about equal in length to tube, brownish; spines on basal abdominal segments short, colorless.

Measurements:—Total length, 3.8–4.3 mm.; head, length .64–.70 mm., width .28 mm.; prothorax, length about .27 mm., width (including coxæ) .55 mm.; pterothorax, width .65 mm.; abdomen, width .75 mm.; tube, length .60 mm., width at base .137 mm., at apex .07 mm. Antennæ: 1, 64μ; 2, 92μ; 3, 224μ; 4, 196μ; 5, 168μ; 6, 115μ; 7, 78μ; 8, 92μ; total, 1.02 mm., width 53μ.

Male.—Larger than female (length about 4.5 mm.). Fore tarsi brownish yellow; fore tibiæ blackish brown, darker basally.

Head longer, narrower, and wider across eyes than that of female; genal spines longer and much more prominent; postocular bristles less than half as long as eyes. Eyes larger, more bulging, the head flaring out to receive them.

Prothorax longer than width of head, less than twice as wide as long; anterior lateral margins broadly and evenly rounded. Inner surface of fore femora without trace of a tubercle; outer surface near apex with a long, stout, downwardly-hooked spine; fore tarsi armed each with a very large, stout tooth.

Abdomen slender, tapering evenly from base to tube. Tube .73 as long as head, tapering evenly from base to apex. Segment 9 with a pair of strong, prominent, downwardly-directed, brown spines on its ventral surface.

Measurements:—Total length 4.52 mm.; head, length .74 mm., width .26 mm.; prothorax, length .35 mm., width (including coxæ) .60 mm.; pterothorax, width .70 mm.; abdomen, width .66 mm.; tube, length .54 mm., width at base .123 mm., at apex .078 mm. Antennæ: 1, 73μ; 2, 98μ; 3–8?

Described from four females and one male, all from Illinois, as follows: White Heath, Aug. 26, 3 ♀'s and 1 ♂, on white oak (C. A. Hart); Bosky Dell, Oct. 22, ♀, on white oak (L. M. Smith).

This species is a very distinct one, readily distinguishable from its congeners by the femoral tubercle and tarsal tooth of the female, and by the armature of the ninth abdominal segment of the male. It is the largest known North American species of the order east of the Rocky Mountains.

Recent Deaths.

William Harris Ashmead, Honorary Fellow of the Entomological Society of America, died in Washington, D. C., October 17th, 1908. Mr. Ashmead has been a tireless worker in entomology and his name will be permanently connected with the science of American entomology, especially in the Hymenoptera, which was the field of his work for many years.

James Fletcher, Entomologist of the Central Experimental Farms of the Dominion of Canada, and one of the best known of American entomologists died in Montreal, Canada, November 8th, 1908. He has been a fellow and one of the active officers of the Entomological Society of America and one of the strongest friends and an ardent supporter of the Annals.